MicroGenDX
NEXT-GEN DNA SEQUENCING
FOR ACCURATE MICROBIAL IDENTIFICATION

COMPARE TRADITIONAL CULTURES, PCR & NGS

	TRADITIONAL CULTURE METHOD	PCR (POLYMERASE CHAIN REACTION)	NEXT-GEN DNA SEQUENCING
DIAGNOSTIC TOOLS *VALUES FOR CLINICAL DECISION MAKING*	***Microbiology*** Developed in 1880's and designed for acute infections	***Molecular Method*** Developed in 1970's	***Molecular Method (Adv)*** Advancements in molecular diagnostics developed in 2004
METHODOLOGY OF DIAGNOSTIC TOOLS	Depends on bacteria or fungi to grow out on petri or agar plate to detect species	Extracts microbial DNA & matches to limited PCR Panels	Extracts microbial DNA and matches to 50,000+ curated species library
EFFICACY OF TESTING TOOLS	Identifies less than 1% of all known microbes (anaerobes are specially hard to grow)	Rapid and highly sensitive detection but limited PCR panels[1] *PCR tests fail to detect some mutated strains even within panel*	Our NGS test will match each microbe to our curated library of 50,000+ species - Even highly mutated strains[2]
EFFICACY AS A BIOFILM DIAGNOSTIC TOOL (More than 80% of all chronic infections are caused by Biofilms)	Microbes that move to a biofilm phenotype can not easily grow in traditional culture methods	Molecular testing can be used for biofilm phenotype (if species are listed in the panel)	Highest probability to detect all microbes within a biofilm infection
ABILITY TO DETECT DOMINANT SPECIES	Only 15-30% accuracy to find dominant species within the infection	Fails to detect dominance due to limited panel size	Complete analysis of species in sample listed by dominance
ABILITY TO DETECT MICROBES WITHIN EACH SAMPLE	50% chance of No Growth Results - Many times culture will only report 1 specie	Will only detect species targeted within the panel	More than 99% of all microbes within each sample can be detected by NGS
FUNGI DETECTION	Up to 20+ days for results on fungi if anything at all	24hrs for results on Candida Albicans	3-5 business days for results of all known fungi species
ANTIBIOTIC SENSITIVITIES	Only relevant in acute infections[3]	Resistance Genes Not always included in PCR panels	Utilizes MicroGenDX PCR 17 Resistance Genes results
TURN-AROUND-TIME	24hrs to several days for bacteria - 20+days for fungi	24hr/1 business day	3-5 business days
SPECIMEN MANAGEMENT	Sensitive to time and temperature and must follow the American Society of Microbiology guidelines[4]	Not easily affected by time or temperature	Not easily affected by time or temperature

1) Typical PCR Panels only run 10-20 species. This is equivalent to .07% of known microbes. Short fall is PCR panels are so sensitive that bacterial mutations may not be detected. 2) Many times detecting microbial species PCR did not in its panel or did not detect because of mutated gene. PCR can report a false negative: because of mutations PCR may not detect them but in NGS we can detect those species are in the sample. 3) A Breakpoint has not been determined for biofilms in the traditional culture method. 4) Must follow the ASM Guidelines and have specimen on the plate within 90 mins and kept at room temperature.

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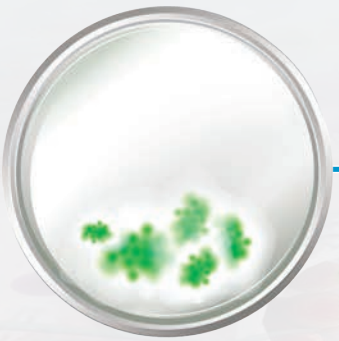
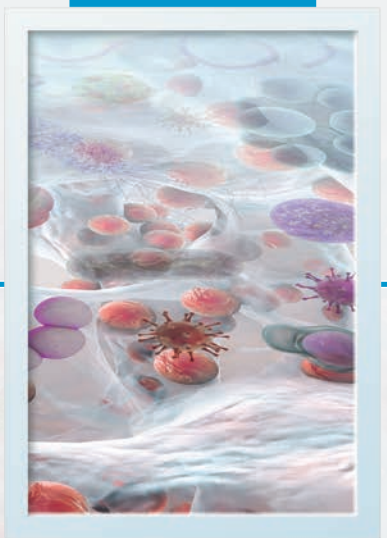
CULTURE RESULTS



staphylococcus aureus

BIOFILM



NGS RESULTS

- acinetobacter baumannii 63%
- klebsiella pneumoniae 12%
- finegoldia magna 10%
- staphylococcus aureus 4%

RESISTANCE GENES DETECTED

Methicillin, Quinolone

National Institute of Health stated "Biofilms are clinically important, accounting for over 80% of microbial infections in the body.

FOR NGS, TURN TO:

MicroGenDX, market leader in molecular diagnostics for infections.

MicroGenDX is the only CAP and CLIA certified laboratory using Rapid PCR and Next-Gen DNA Sequencing for Infectious Disease.

For fast delivery of the most comprehensive microbial reports on the market!

Most experienced lab with more than 400k samples processed

- ✓ Provide antibiotic resistance genes for 8 classes of antibiotics
- ✓ Fastest turnaround of results (3.5 days)
- ✓ Least expensive lab in the world for PCR + NGS ($199/patient)
- ✓ The most published clinical trials
- ✓ The only NGS lab with published data showing 96.1% concordance with culture

Use NGS on sites of suspected infections:

- Blood
- Chronic bacterial prostatitis
- Chronic UTIs
- Endocarditis
- ENT
- Hardware infections
- Orthopedic
- Podiatry/Nail
- Prosthetic joint infections
- Spine infections
- Urology
- Wound Care

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